

Date: Sat, 16 Jul 94 04:30:14 PDT
From: Ham-Ant Mailing List and Newsgroup <ham-ant@ucsd.edu>
Errors-To: Ham-Ant-Errors@UCSD.Edu
Reply-To: Ham-Ant@UCSD.Edu
Precedence: Bulk
Subject: Ham-Ant Digest V94 #224
To: Ham-Ant

Ham-Ant Digest Sat, 16 Jul 94 Volume 94 : Issue 224

Today's Topics:

 Antenna on my boat??
 Antenna safety
 Experience with R7
 INTERNET DX Info?
 looking for antenna sim progs
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 Need a little advice
 rec.radio.amatuer.antenna still alive?
 SWR vs Frequency Excursions (2 msgs)
 tower/antenna
 What's your favorite cheap RDF 2m antenna

Send Replies or notes for publication to: <Ham-Ant@UCSD.Edu>
Send subscription requests to: <Ham-Ant-REQUEST@UCSD.Edu>
Problems you can't solve otherwise to brian@ucsd.edu.

Archives of past issues of the Ham-Ant Digest are available
(by FTP only) from UCSD.Edu in directory "mailarchives/ham-ant".

We trust that readers are intelligent enough to realize that all text
herein consists of personal comments and does not represent the official
policies or positions of any party. Your mileage may vary. So there.

Date: 15 Jul 1994 19:17:09 GMT
From: agate!howland.reston.ans.net!noc.near.net!transfer.stratus.com!
abersoch.sw.stratus.com!northup@ames.arpa
Subject: Antenna on my boat??
To: ham-ant@ucsd.edu

For a different approach - I have a sail boat with a fair sized lead keel.

I wanted to try out HF on the boat so I took the Hustler antenna off of my
truck and put it on the stern rail and used the keel as a ground. This has
worked far better than I expected on 10, 15, 17, and 20 meters.

I didn't work at all for 40 meters so I use an inverted V for that band.

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--

Bill Northup	PHONE: (508) 460-2085
Stratus Computer Inc.	INTERNET: northup@sw.stratus.com
55 Fairbanks Boulevard	Packet: N1QPR@WA1PHY.#EMS.MA.USA.NA
Marlboro, MA 01752	Amateur Radio: N1QPR

Date: Fri, 15 Jul 1994 14:35:34
From: ihnp4.ucsd.edu!dog.ee.lbl.gov!agate!howland.reston.ans.net!gatech!udel!
news2.sprintlink.net!news.sprintlink.net!nwnexus!olympus.net!olympus.net!
vaughnwt@network.ucsd.edu
Subject: Antenna safety
To: ham-ant@ucsd.edu

>I need to mount an antenna for a 900 MHz spread-spectrum radio link.
>The area where the antenna will reside is subject to strong winds all
>year round, so the mast or tower will have to be steady and strong.
>There's an average of one thunderstorm per day during the summer, so
>lightning protection needs to be good. The lot on which the building
>sits is 66' across, and there are high voltage power lines in the alley
>about 6' beyond the property line. The building butts right up against
>the opposite end of the property.

Check with the local building codes for grounding information. They might also have some regs on antenna location to power lines. The safe way is to locate the tower so that it could not hit the power lines even if it does fall.

>The antenna itself will be an omni with 9 dB of gain -- fairly expensive,
>but necessary to give it a good reach even when it's iced over.

You need to know the wind load for this antenna.

>What's the best method of mounting the antenna safely, securely, and
>high enough to work? The local Radio Shack said it had a 39' mast designed
>for TV antennas, which could be mounted on the roof using an eave or tripod
>mount. (The resulting height would be about 57' -- just about right.)
>But of course, I don't trust Radio Shack to know anything about antenna
>safety, or mounting it to resist winds. They also drew a blank when I
>asked about grounding and lightning protection.

Run away from radio shack. Call Rohn towers 309-697-4400 and ask for there catalog. It is chock full of all the info you need.

>What do I need to know to get the antenna up (and have it stay up)? How
>can I avoid having the building burn down if lightning strikes? How can
>I protect the digital transceiver at the end of the coax? And what precautions,
>if any, need to be taken about the power lines?

>Any info, advice, comments, and pointers to literature would be much
>appreciated.

>--Brett Glass

William Vaughn vaughnwt@olympus.net "Just plain Bill."

Date: Fri, 15 Jul 1994 19:38:02 GMT
From: agate!spool.mu.edu!cass.ma02.bull.com!claudelzds-oem!news@ames.arpa (Reid
Simmons - r.simmons@zds.com)
Subject: Experience with R7
To: ham-ant@ucsd.edu

In article <rogjdCsvx8C.DGI@netcom.com> rogjd@netcom.com (Roger Buffington)
writes:

>Roger Buffington (rogjd@netcom.com) wrote:

>: Daniel T Senie (dts@world.std.com) wrote:

>

>: : Interesting. I guess the only thing I can disagree with you on is it being
>: : a "well known" problem. I have not experienced any such problems with
>: : my R7, but I have not run high power through it either. I guess the
>: : problem may not be commonly known on this coast...

>

>: A friend of mine (local) who had an R-5 eventually sold it due to the
>: trap problem. He did an informal on-the-air survey of something like 25
>: hams with R-5 whom he worked on the air. All but one had had to request
>: at least one new trap from Cushcraft. But out here in Southern Cal, yes,
>: the problem is well known and widely discussed.

>

>: : >

>

>Folks, I screwed up in this post. Hadn't had my morning coffee! :-)

>

>IT IS THE R-7, NOT THE R-5, WHICH HAS THE PROBLEMS WITH THE TRAPS.

>

>SORRY ABOUT THE SCREWUP. THE R-5 TO MY KNOWLEDGE HAS ***NO*** PROBLEMS
>WITH TRAPS.

>

>PLEASE SUBSTITUTE R7 FOR R5 IN MY EARLIER POST.

>

>There. I feel better.

>--

>

rogjd@netcom.com

>

Glendale, CA

>

AB6WR

I have had my R7 since they first came out (late '91?). I run a KW into it on all bands 40 thru 10 (well, except 30, where there IS a power limitation) and I have never had a trap failure - not even heard of anyone having a trap failure. Also the SWR curves for my installation match (or in some cases are better than) those published by Cushcraft.

Reid, NZ8K

Date: 15 Jul 1994 22:06:03 -0400

From: newstf01.cr1.aol.com!search01.news.aol.com!not-for-mail@uunet.uu.net

Subject: INTERNET DX Info?

To: ham-ant@ucsd.edu

Is there a server on INTERNET which will return DX callbook information?
Also is there an up-to-date US callbook server?

Many thanks.

Den, NW2J

Date: 15 Jul 1994 21:35:42 GMT

From: news.cerf.net!gopher.sdsc.edu!news.tc.cornell.edu!

travelers.mail.cornell.edu!news.kei.com!yeshua.marcam.com!zip.eecs.umich.edu!

newsxfer.itd.umich.edu!europa.eng.gtefsd.@@ihnp4.ucsd.edu

Subject: looking for antenna sim progs

To: ham-ant@ucsd.edu

I'm looking for antenna simulation programm's.

Nec II

Nec 81

MN 3.54

Mininec3

El nec 2

Ao

I like to know where I can find these programma's.

--

Paul Bakker (pthb@hacktic.nl)
Tel. Voice Home: +31 (0)20 6737913 Amsterdam, The Netherlands.
Work: +31 (0)35 874812

Date: 15 Jul 94 18:56:06 GMT
From: agate!howland.reston.ans.net!vixen.cso.uiuc.edu!aries!hawley@ames.arpa
Subject: loss in shielded balanced feeders
To: ham-ant@ucsd.edu

royle@tek4.cse.tek.com (Roy W Lewallen) writes:

>DAVID@medcor.mcgill.CA:

>> [describes a 10 m long dipole used for 10-28 MHz. Performance was fair
>> when 300 ohm twinlead was used as a feeder, and seems poor using two
>> pieces of RG6]

>It seems to me that the loss will be the same for the two pieces of coax
>used as a balanced feeder as for a single piece. Suppose the cable loss is
>1 dB for a single piece of coax. If you imagine cutting the antenna in two
>and feeding the two halves separately, each with its own piece of coax,
>the cable loss will be 1 dB for the power delivered to each of the antenna
>halves. So the ratio of total power delivered to total power put into the
>line will be 1 dB. (Intuitively, using two pieces of cable will reduce the
>current in each piece since the transmission line Z is twice as high, but
>the current has to traverse twice as much cable. These factors cancel.) By
>the way, the cables aren't paralleled, they're in series.

>From the Belden catalog, the loss in the RG-6 setup is about 0.6 dB per
>100' greater than typical 300-ohm twinlead (about 1.2 vs. 0.6 dB). From
>the graph in the ARRL Antenna Book, this could make a noticeable difference.
>With 20:1 SWR (which your system could easily exceed), the difference
>between a 0.5 dB and 1.0 dB matched-loss line is about 2 dB. The RG-6 will
>run circles around the 300-ohm line when wet, though! Even dry 300 ohm line
>might be poor for your application. Belden says it has a loss of 1.1 dB/100'
>at 100 MHz. This is 0.6 dB/100' at 30 MHz. The Antenna Book shows that if the
>matched loss is 0.6 dB, the loss with a 20:1 SWR will be over 3 dB, and 10 dB
>if the SWR is 50:1. So if your line is 100' long, you can take quite a
>beating with 300 ohm line, and worse with RG-6.

>73,

>Roy Lewallen, W7EL
>roy.lewallen@tek.com

If the feedline is less than a quarter wavelength, and the frequency low so that the loss is due mostly to IsqR, would the loss be much greater for a 50:1 SWR resulting from 1 ohm load, than from a 2500 ohm load?
I'm thinking of ant tuners in the front seat in mobiles, versus at home on the desk with dipoles. Thanks.

Chuck Hawley, KE9UW in Urbana, Illinois
hawley@aries.scs.uiuc.edu
School of Chemical Sciences, Electronic Services
University of Illinois, Urbana-Champaign

Date: Fri, 15 Jul 94 19:54:52 PDT
From: ihnp4.ucsd.edu!agate!howland.reston.ans.net!gatech!udel!
news2.sprintlink.net!news.sprintlink.net!news.onramp.net!usenet@network.ucsd.edu
Subject: Need a little advice
To: ham-ant@ucsd.edu

I've been QRT on HF the last couple of years and would like to work 40-20-15 again, but am unable to do a beam. I've seen the verticals advertised by MFJ, GAP, and Cushcraft.....I'd sure love to hear which on of these antennas actual owners think I should buy...What say OM...TNX W5VSY ernie@onramp.net

Date: 15 Jul 94 12:03:59 EDT
From: psinntp!main03!drager.com!landisj@uunet.uu.net
Subject: rec.radio.amatuer.antenna still alive?
To: ham-ant@ucsd.edu

I've not seen anything in the rec.radio.amateur.antenna group lately. Has it been renamed, or do I need to look into a feed problem?
Joe - AA3GN

--
Joe Landis - System & Network Mgr. - North American Drager Co. Telford, PA
landisj@drager.com | uupsi5!main03!landisj | AA3GN@WA3TSW.#EPA.PA.USA
Opinions are mine only, and do not reflect those of my employer.
...Munging Until No Good...

Date: 15 Jul 1994 18:15:15 GMT
From: ihnp4.ucsd.edu!agate!howland.reston.ans.net!gatech!asuvax!chnews!

scorpion.ch.intel.com!cmoore@network.ucsd.edu
Subject: SWR vs Frequency Excursions
To: ham-ant@ucsd.edu

In article <2vv0am\$6hd@tekadm1.cse.tek.com>,
Roy W Lewallen <royle@tek4.cse.tek.com> wrote:

>;Cecil--;Are you sure about that? :^)

Hi Roy, I'm absolutely sure that there are no absolutes. ;-)

>Therefore, for practical
>purposes at HF and above, only a very nearly purely resistive load equal
>to the (very nearly purely resistive) line characteristic impedance will
>result in a 1:1 SWR on the line.>Roy Lewallen, W7EL>roy.lewallen@tek.com

Thanks, Roy, for saying it better than I did.

73, KG7BK, 00TC, CecilMoore@delphi.com

Date: 15 Jul 1994 20:57:38 GMT
From: ihnp4.ucsd.edu!news.cerf.net!gopher.sdsc.edu!nic-nac.CSU.net!
charnel.ecst.csuchico.edu!psgrain!news.tek.com!tek4.cse.tek.com!
royle@network.ucsd.edu
Subject: SWR vs Frequency Excursions
To: ham-ant@ucsd.edu

ab4el@jabba.cybernetics.net (Stephen Modena):

>When I did some experiments a few years back with my noise bridge, I
>detected a discrepancy between the apparent velocity factor for a
>half-wave transmission line and it's velocity factor at successive
>odd multiples of frequency...I assumed that there was an end-effect
>at play, as there is a calculated difference between the resonant length
>of a 40 M dipole vs. what the length should be to operate it on 15 M at
>the exact 3X frequency.

>I postulated an "end effect," but could the discrepancy be due to this
>small amount of "natural" reactance in coax? (I was very careful
>and used a number of different sizes, lengths and Zo's of coax...and
>tracked the short circuit null points on the resistor and capacitor
>dials at all of the frequencies used.)

The "end effect" is real. It's due to the field extending beyond the
open end. You'll get more consistent results if you measure short-
circuited lines, since it's easier to make a good short circuit than a

good open circuit. (A good short circuit is one with very little inductance.) Most measurement techniques I've used also do best when looking for a short, rather than open, at the input end.

>Suppose our reference impedance is $50 + 0j$; and looking into the transmission line, we see 45 ohms resistive plus enough reactance such that the vector sum is "50 ohms" impedance--at frequency f_1 . Since I didn't specify whether the reactive part was plus or minus, then I might suppose that at a nearby frequency f_2 there is a "conjugate" impedance (Don't jump on me too hard for the way I'm manipulating the vocabulary! :^)

Don't confuse impedance with resistance. There are an infinite number of combinations of load resistance and reactance which will result in an impedance with magnitude of 50 ohms. But only one of these will result in an SWR of 1:1 when placed at the end of a 50-ohm line. This is, of course, $50 + j0$. (We're making the good assumption here that the line's characteristic Z is purely real.) All the other combinations will result in a higher SWR. In fact, two ($+j50$ and $-j50$) will result in an infinite SWR.

>Wouldn't my "SWR meter" show two dips to 1:1~ as I sweep that part of the spectrum?

Nope. In fact, for most antennas, the SWR won't be 1:1 at any frequency, unless the antenna's resistance at resonance happens to be equal to the characteristic impedance of the transmission line.

73,
Roy Lewallen, W7EL
roy.lewallen@tek.com

Date: 16 Jul 94 05:41:10 GMT
From: news-mail-gateway@ucsd.edu
Subject: tower/antenna
To: ham-ant@ucsd.edu

Looking for advice on using a crank-up tower for the low bands. I have tried to do this with mixed results. The tower is ungrounded at the base. Thanks

73 Robert WB5CRG w5robert@blkbbox.com

Date: 15 Jul 1994 19:44:52 GMT

From: yale.edu!noc.near.net!transfer.stratus.com!abersoch.sw.stratus.com!
northup@yale.arpa
Subject: What's your favorite cheap RDF 2m antenna
To: ham-ant@ucsd.edu

ed@fore.com (Ed Bathgate) writes:

: What inexpensive 2m RDF antennas and/or techniques
: have you successfully utilized.
:
: I have seen (not personally used) - a df system that used 2 switched antennas
: (audio freq oscillator - square waves - 2 phases and diode switching for 2
: antennas with equal length feed lines)
:
:
:

:
: | |
: | | < short dipoles equal lengths, (but not resonant!)
: =====[]=====
: | [] |
: | | |
: |
: < coax from osc/diode switcher to receiver.
:
:

: This thing supposedly works by phase sense difference between the 2 antennas.
: It works with the fm phase discriminator, giving no tone when signal is
: equidistant from both antennas (broadside), max tone if it is inline.
: It is bi-directional but its claimed to be accurate to a few degrees.
: I have also seen this design commercially for about \$75+.
:

[things removed]

: 73

: Ed N3SD0

I have been using three methods that seem to work.

- 1) Using a handy finder circuit which does the antenna switching described above. To start with I use a dual dipole antenna (shown above) with the dipoles tuned for the frequency that is being used. For the dipoles I use two sets of RS TV rabbit ears because they are easy to tune. After the initial bearings I remove the cross rod and dipoles and hook up a single dipole (rabbit ears) and use this for additional bearings after I have started moving around.
- 2) In addition to direction I like to have signal strength information. To quickly adjust the antenna gain I have the a radio shack cable that sticks on the windshield and connects to the HT. I start using the

rubberduck antenna, then move to 3", 2" and 1" paper clips. When I reach full scale signals with the 1" paper clip I get ~ S2 with no antenna.

3) Body fade, it works a lot better than most people would expect.

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Bill Northup	PHONE: (508) 460-2085
Stratus Computer Inc.	INTERNET: northup@sw.stratus.com
55 Fairbanks Boulevard	Packet: N1QPR@WA1PHY.#EMS.MA.USA.NA
Marlboro, MA 01752	Amateur Radio: N1QPR

Date: Fri, 15 Jul 1994 14:25:19
From: ihnp4.ucsd.edu!dog.ee.lbl.gov!agate!howland.reston.ans.net!gatech!udel!news2.sprintlink.net!news.sprintlink.net!nwnexus!olympus.net!olympus.net!vaughnwt@network.ucsd.edu
To: ham-ant@ucsd.edu

References <Csx0C9.8o2@news.Hawaii.Edu>, <vaughnwt.25.00128FB0@olympus.net>, <CsyzDH.9Cu@news.Hawaii.Edu>nex
Subject : Re: Antenna on my boat??

>In article <vaughnwt.25.00128FB0@olympus.net> vaughnwt@olympus.net (William Vaughn) writes:

>>

>>Gary, go down to radio shack or your local marine/bait/hardware store and buy
>>a shakespeare marine fold down whip for your cb.

>I wouldn't want the commercial fiberglass 'compromise' CB antennas on
>a boat of mine; my radio is my lifeline to the shore - I want to
>make sure my signal is heard!

>Of course, being an ex-Coast Guard Radio Officer I must in good
>conscience say that one should/must have a VHF marine band radio;
>the USCG has an excellent coastal/lake VHF radio system and have
>radiomen listening 24 hours per day to channel 16 (156.80 MHz)
>just waiting to assist you. The antenna of choice is a 5/8 wave
>vertical; but a 1/4 wave ground plane atop a mast would suffice.

>Jeff NH6IL

Jeff, buddy. We are talking about a "CB" antenna here. Why waste time on the silly thing. Being an ex CG radio officer you are probably aware that the coast guard does not monitor CB radio any longer. If there is a CB radio in the comms room the radioman(person) has the gain and volume turned all the way down. Being an ex CG radio officer how many times have you lost a person who had a cb and had to relay thru someone who had a VHF? I suggested that he buy one because they are cheap and he won't get that much better performance anyway. Those vhf antennas you have for your boat, did you make them yourself or did you buy one of those compromise fiberglass ones?

William Vaughn vaughnwt@olympus.net "Just plain Bill."

End of Ham-Ant Digest V94 #224
